

Chapter 4, lesson 52, making a hatch

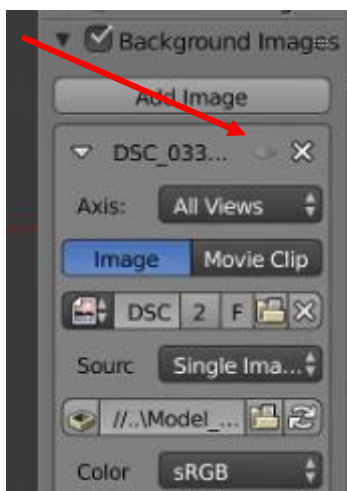
In this lesson we will do some simple modelling and UV-unwrapping to create the hatches that will fill the holes on either side of the main door. The hatches will also be used in later chapters to decorate other areas of the building.

Chapter 4, lesson 52, making a hatch

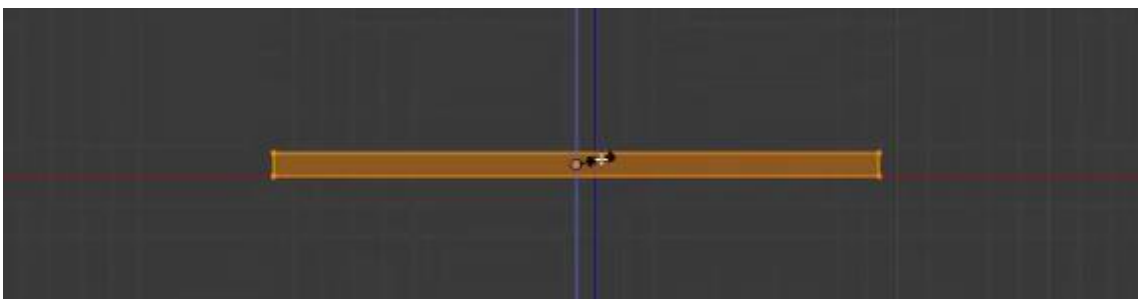
In this chapter we will start to create a hatch as a detail for our building that will cover the areas on either side of the main door. If we look at the reference image we see that the hatches have an iron hinge. For our building we will make this a wooden hinge instead so that the design will differ slightly from the reference.



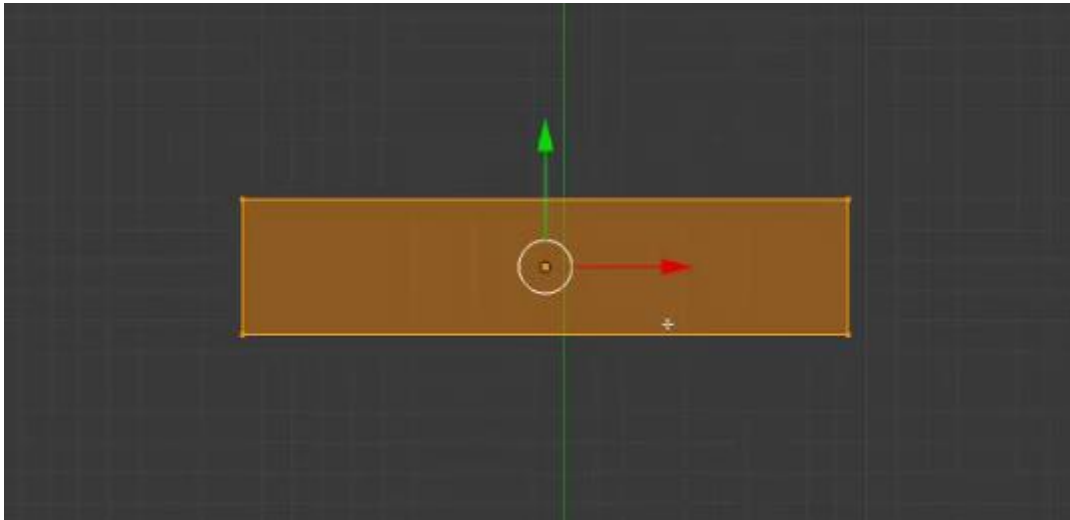
Start by going to the third layer and we will create our first plank for the hatch there. Then if you find the reference image distracting you can disable it in the N-panel under background images. Click the eye icon for the reference image.



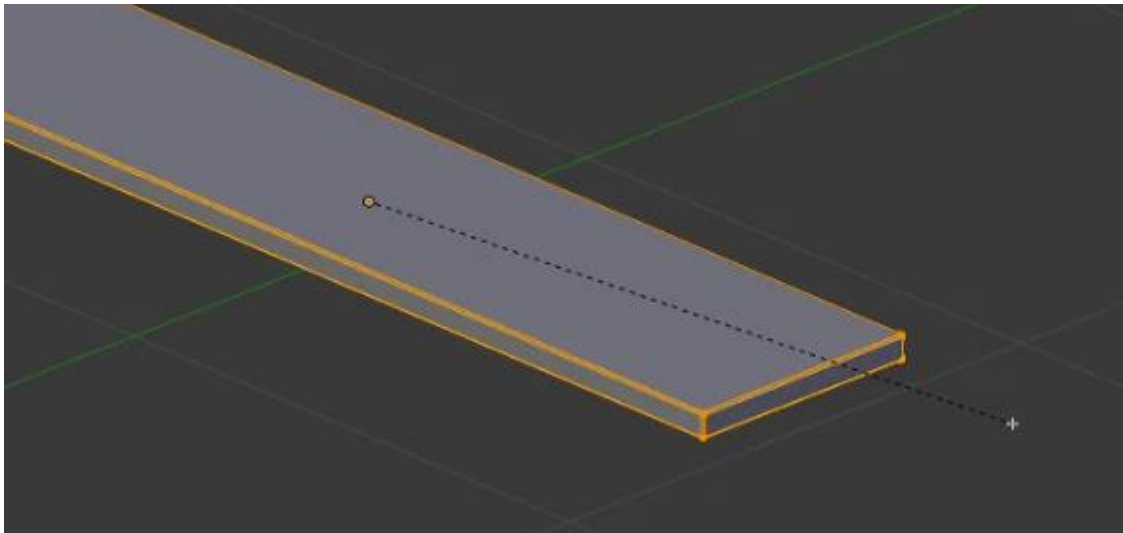
Now add a cube through the add menu or by hitting "**shift+A**", go to mesh and select the cube. Make sure that it is placed roughly in the middle of the scene. Tab into edit mode and scale it on the Z axis with "**S**" followed by "**Z**" and drag the mouse until you have a quite thin box.



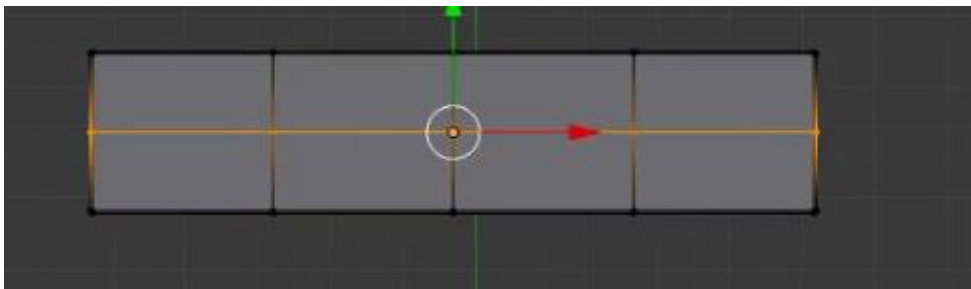
Then go to top view by hitting numpad 5 followed by "**S**" and "**Y**". Make the width roughly like a plank.



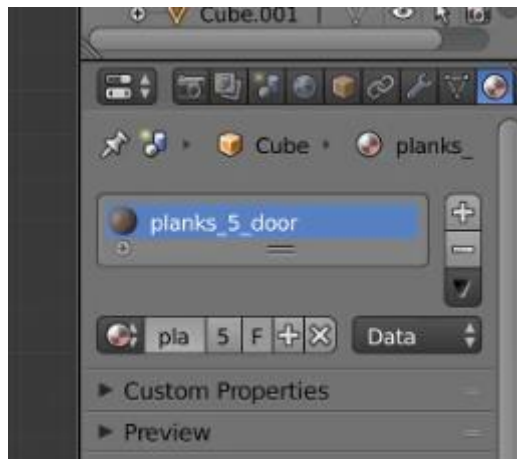
Now we will round of the corners with the bevel tool. Select the whole object and use **“ctrl+B”**.



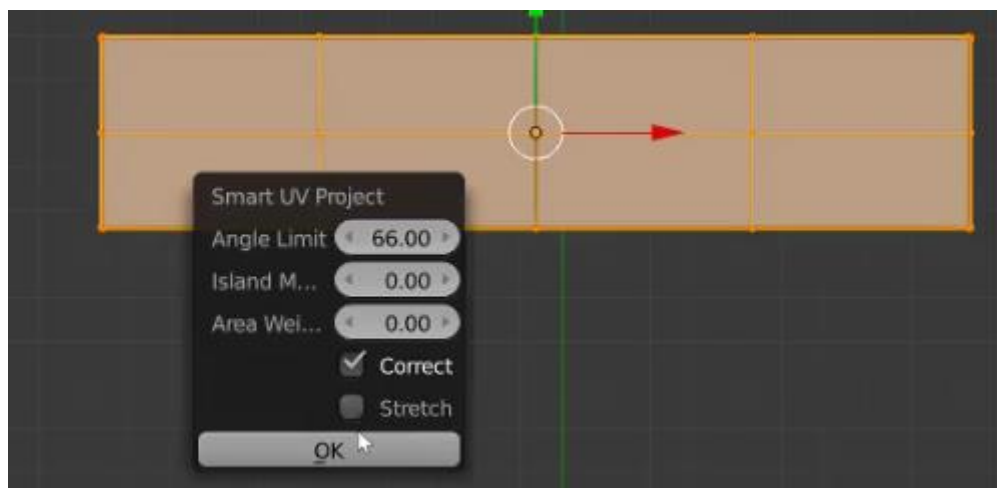
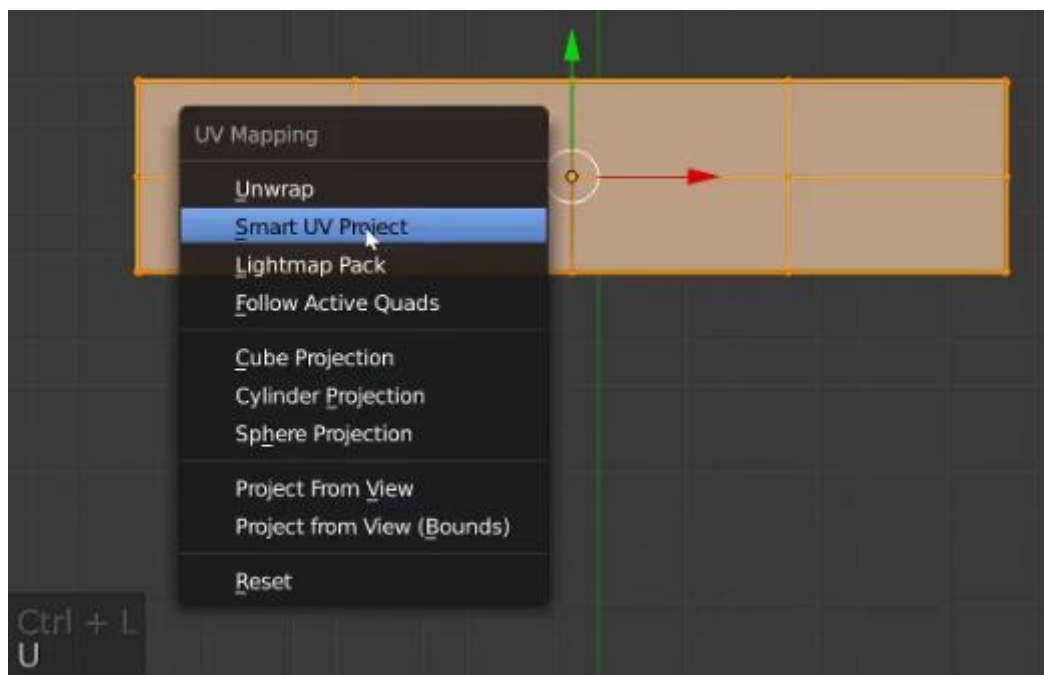
Follow this up by creating 3 loop cuts across the plank and one along it, using **“ctrl+r”**



Now the geometry is done. At this point we will start to work on the material and UV-layout. Go into the material tab for the object in the properties panel. Hit **“new material”** to create a new material slot and chose the **“planks_5_door”** material. Our plank will use this same material.

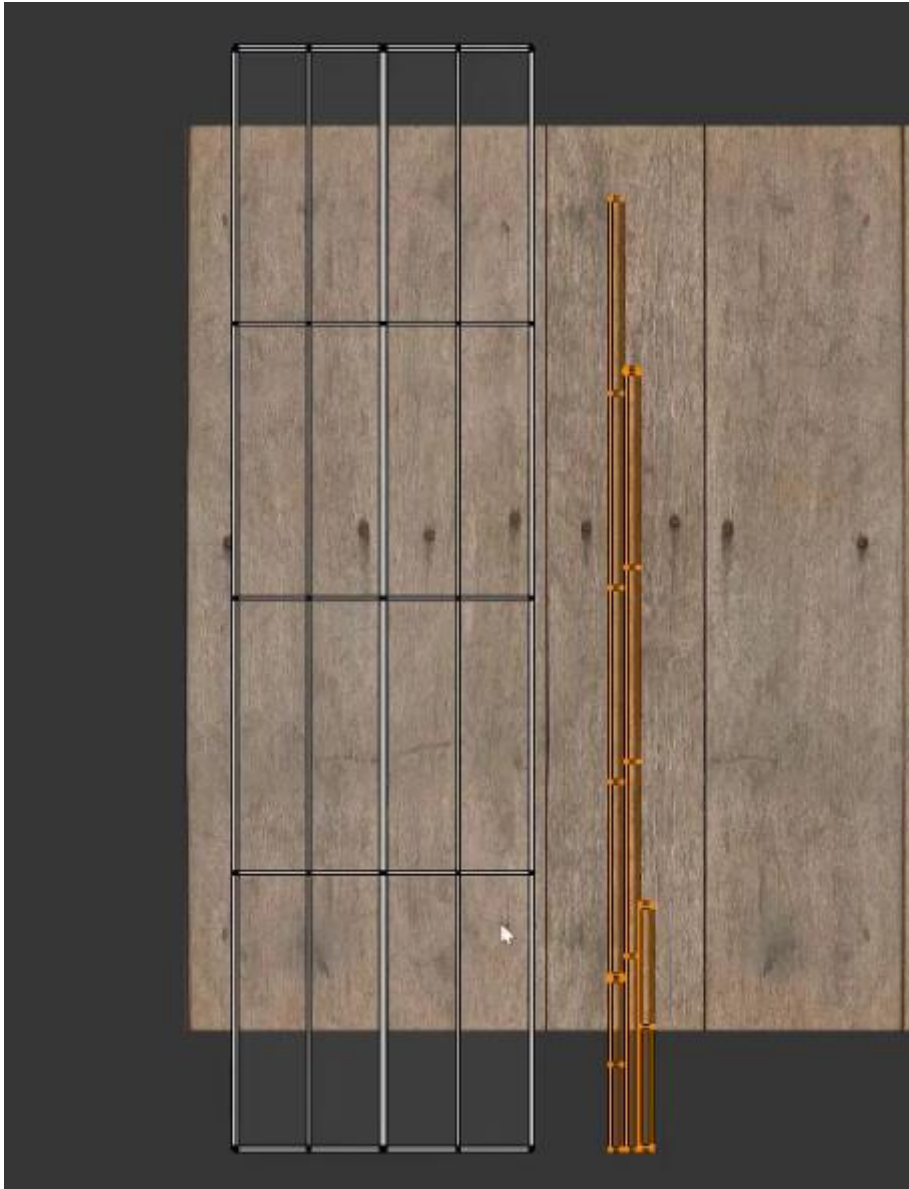


This is the simpler of the wood materials we made in an earlier lesson. At this point we will start to work on the UV-map. Select the whole object in edit mode using “A”. Then hit “U” and select “smart UV project”. Make sure that the stretch is turned off and hit Ok.



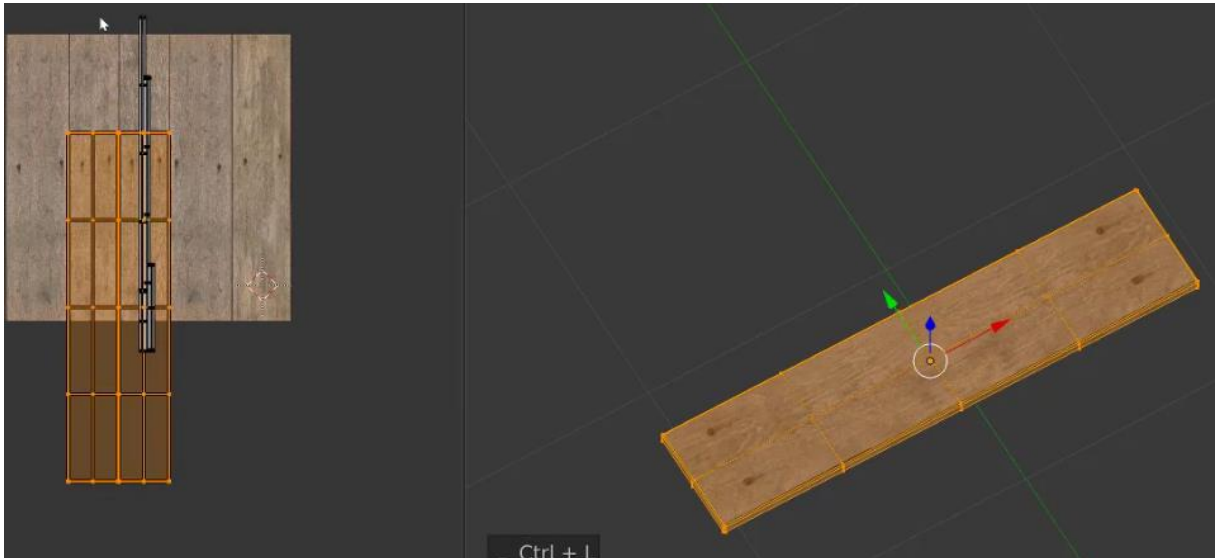
Now we will scale and reposition the UV-map so that the texture fits well on our plank. We will position it so that we have the UV-map between the planks in the texture and no seams are showing. We will also make sure that we have two sets of nails at either end of the plank.

Start by moving the thinner side pieces to a clean piece of the texture and scale the two larger areas a bit on the y axis.

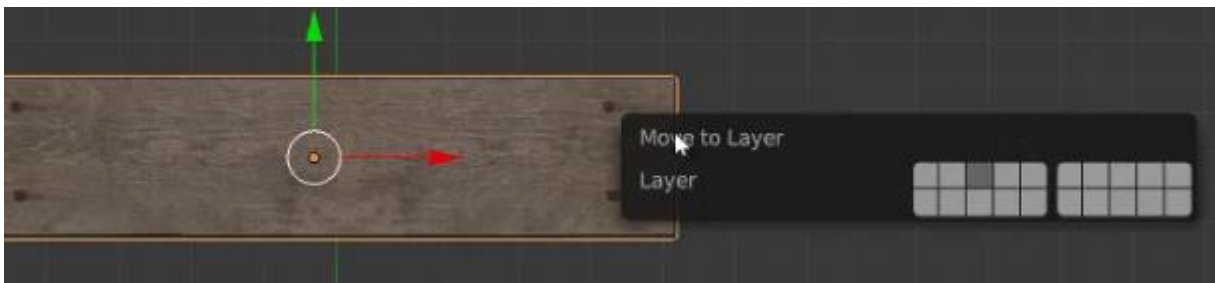


Then reposition the two sides so that they fit within a plank on the texture. Make sure to use different planks for the two sides.

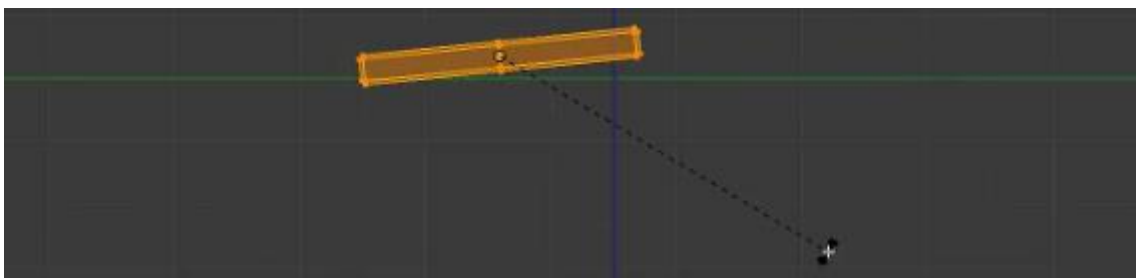
The final UV-map should look something like this and the object should have its nails on either side if we move the UV map down or up so that the nails end up at the edges.



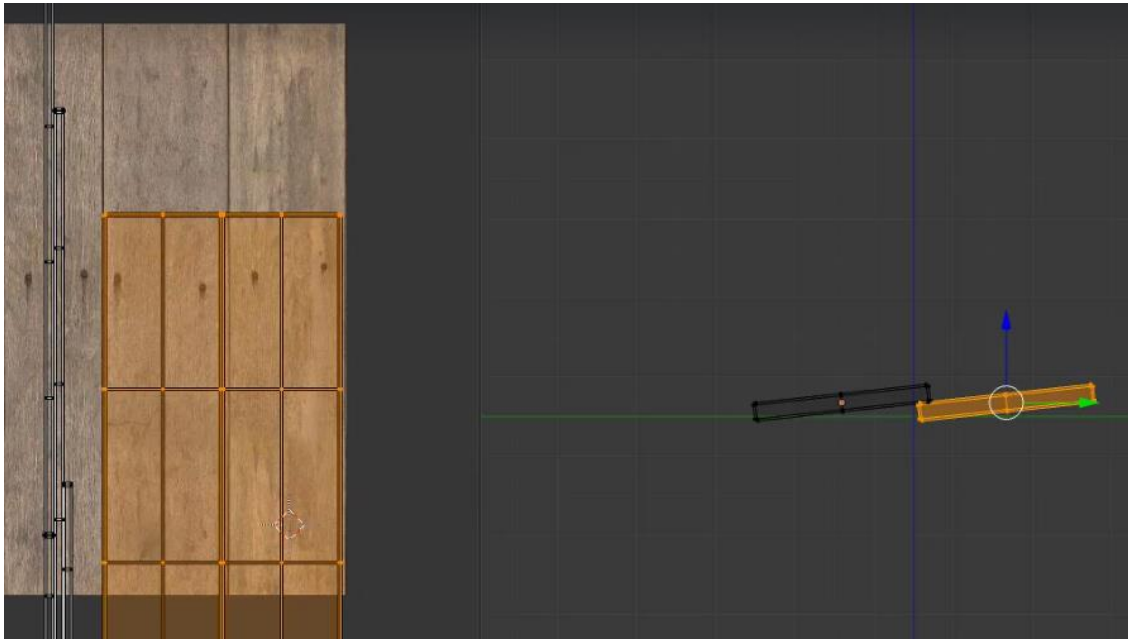
Now the plank is finished. This is a piece that we can reuse over and over by just changing the UV-map slightly to introduce more variation. Now use “**shift+D**” to duplicate the plank and move the duplicate over to layer two where we have our library of building assets. Use “**M**” to move the duplicate.



Now go back to layer 3 and we will start to use this plank to create the hatch. Go to edit mode and press 3 on the numpad to get a sideview. Hit “**R**” to rotate the plank just a bit so that we can overlay multiple planks slightly overlapping each other.



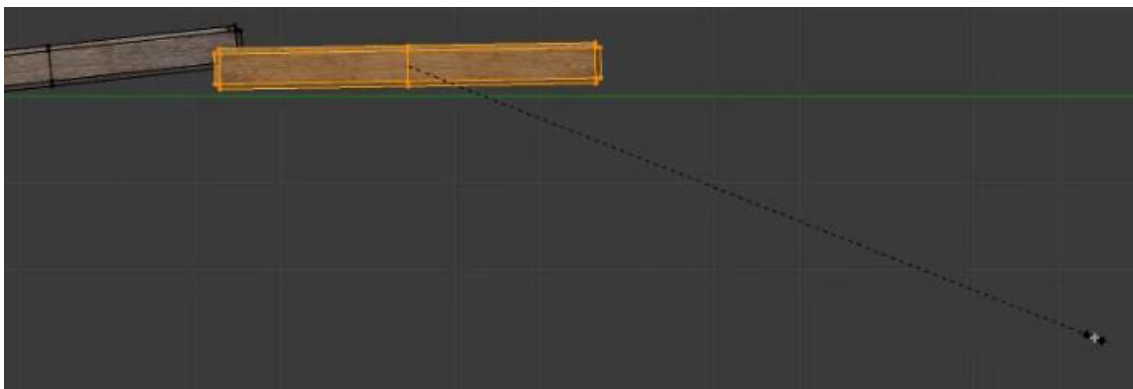
Use “**shift+D**” to duplicate it in the Y direction. For this duplicate, move the UV map to use two new planks for the two sides and scale if the UV map doesn’t fit exactly on to the planks in the texture.



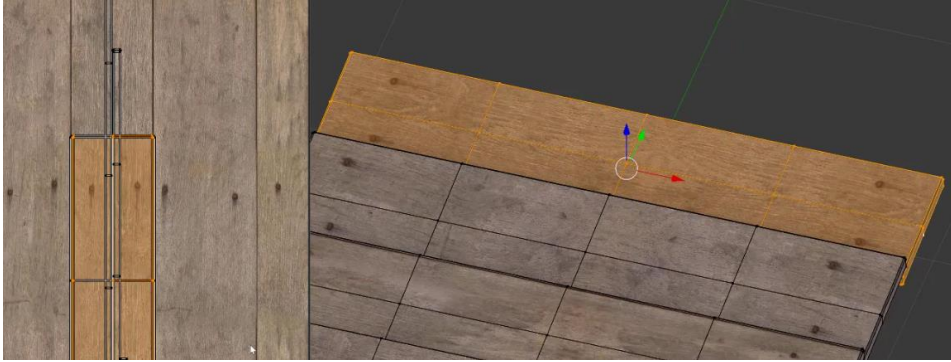
For the next plank we keep duplicating the previous one and moving the UV layout. If you think that you don't get enough variation you can also rotate the UV map by 180 degrees to flip it and in that way use the same area of the texture again.



We can also change the width of our plank if the texture feels stretched. In this way we add another level of variation to the hatch.



Now duplicate one last plank. Repeat the same process as before.

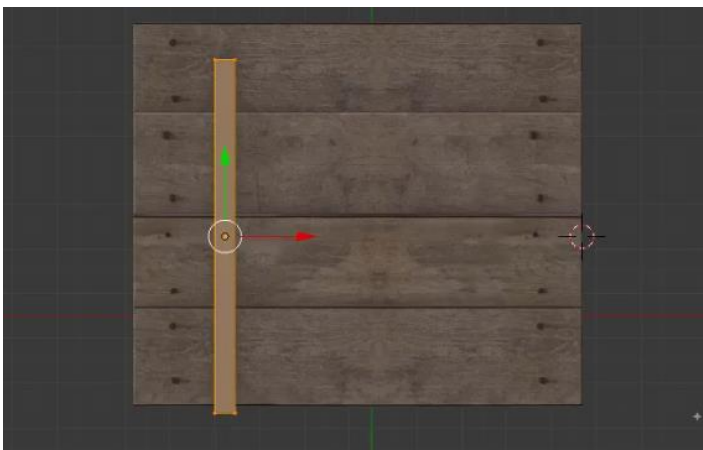


Now we have four planks slightly tilted, with different textures and slightly different sizes. Now we will create our wooden bars going across as a substitute for the hinges in the reference image. These are also very simple to create. They are extruded cubes with a bevel and the same texture applied as we have used for the rest of the hatch.

Go to top view and add another cube. Scale the cube and put it in place on the middle of the hatch in the Y axis and to the left on the X axis.



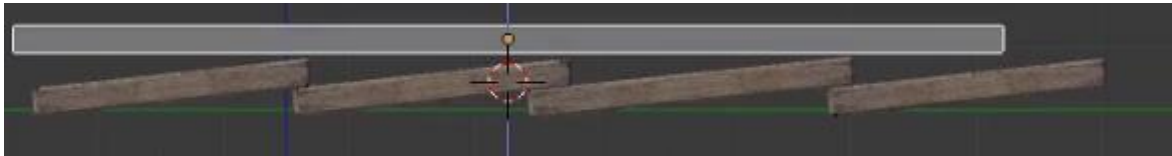
Then scale the cube on the Y axis so that we get a bar going across to break up the pattern of the hatch.



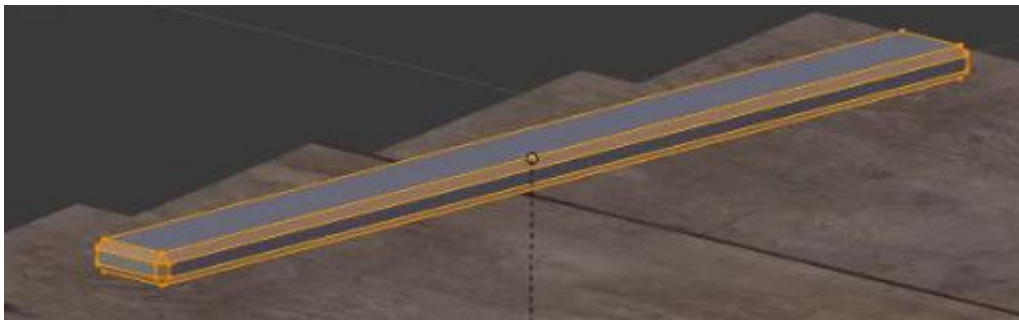
Now go to front view and scale the thickness of the cube on the “Z” axis down a bit.



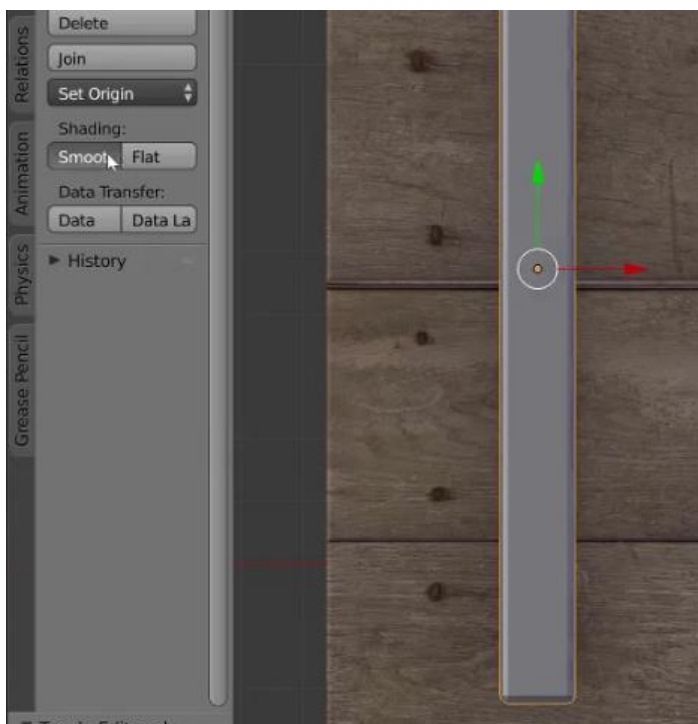
Put the cube on top of the hatch.



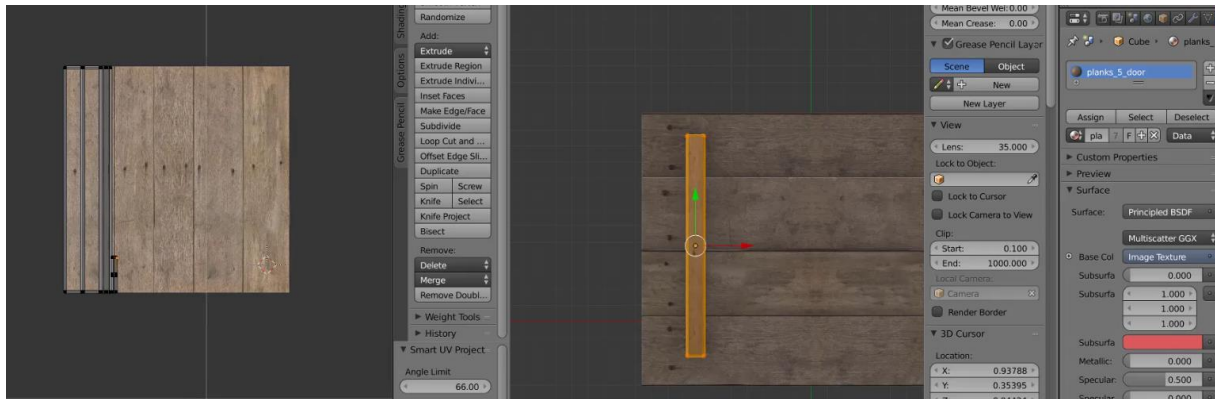
Adjust the size so that you are happy with it compared to the rest of the hatch. Also make sure that the scaling is set to 1 on all axis in the N-panel in the transformation options. If not, go to object mode and hit **"CTRL+A"** and select scale. Now when the scale is set we can use **"CTRL+B"** to bevel the edges in edit mode.



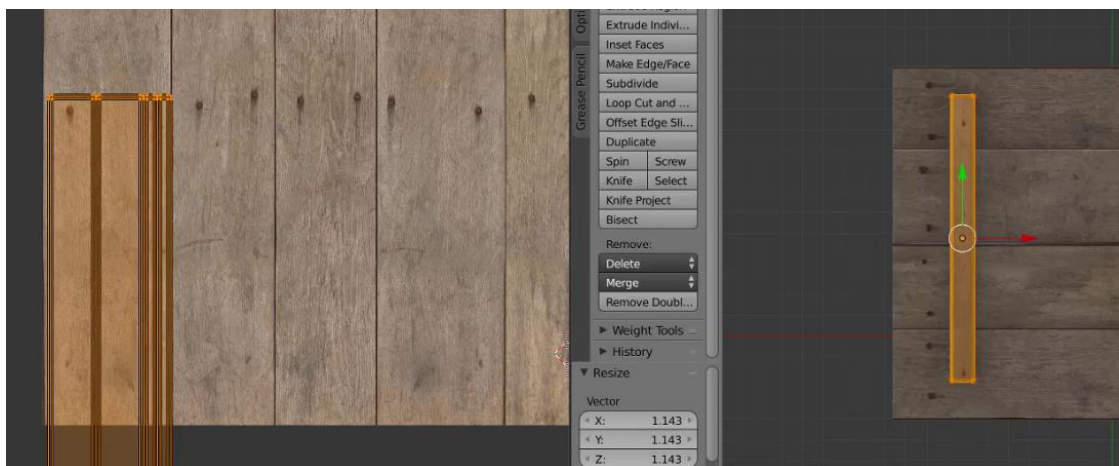
If the edges become to faceted, then go into object mode and in the tools panel hit smooth.



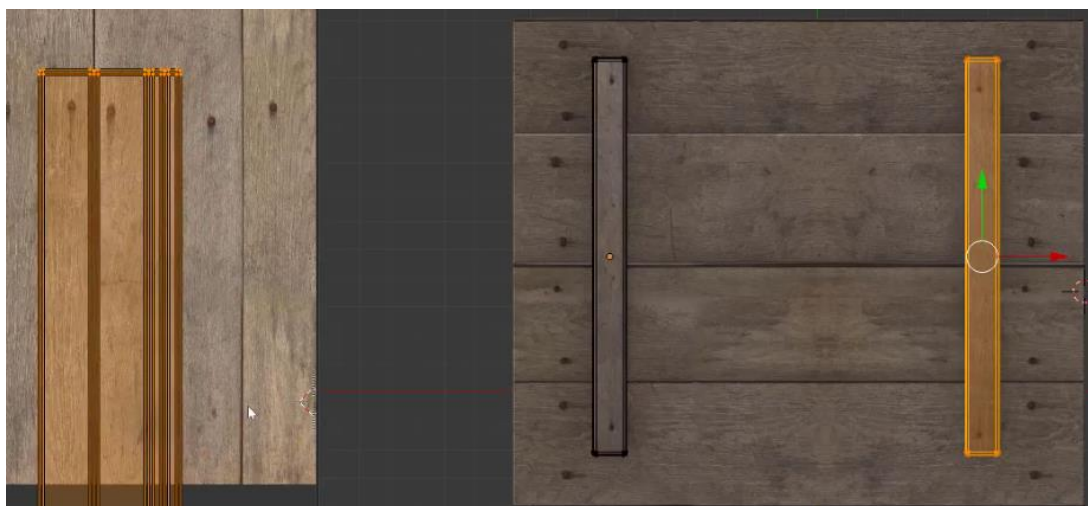
We will put the wood beam into place by making sure that it connects to the planks of the hatch. Do this by adjusting the rotation and position of the planks as well as the wooden bar. Then we will apply a texture to the bar going across. We can link the material to the bar by selecting it, and then select the hatch while holding “**shift**”, follow this up by using “**CTRL+L**” and select materials. Then select the bar and go into edit mode. Hit “**U**” to UV unwrap with the “Smart UV project” algorithm.



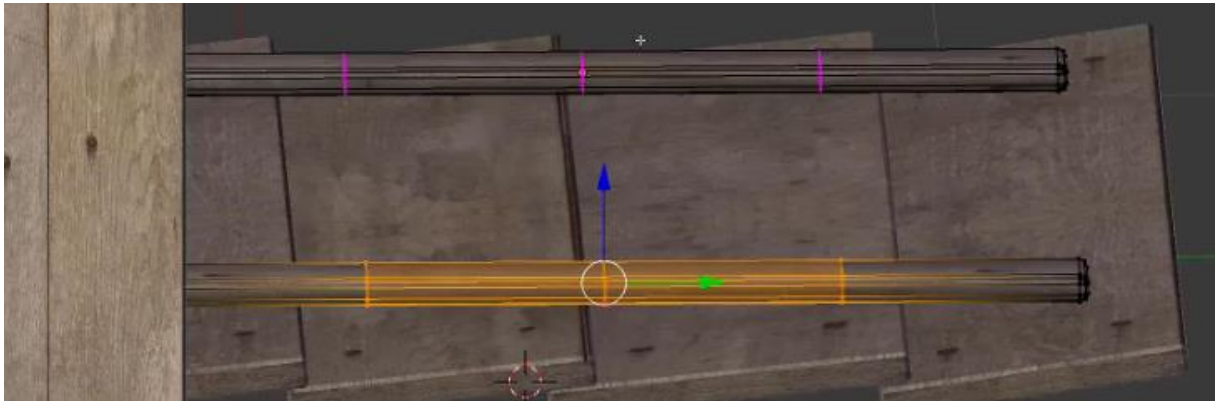
As always, reposition the UV map so that it fits well. In the case of this bar we only want one nail at the top and one at the bottom so make the UV map half as thick as the other planks.



Duplicate the bar over to the left side of the hatch and adjust the UV layout for this duplicate.



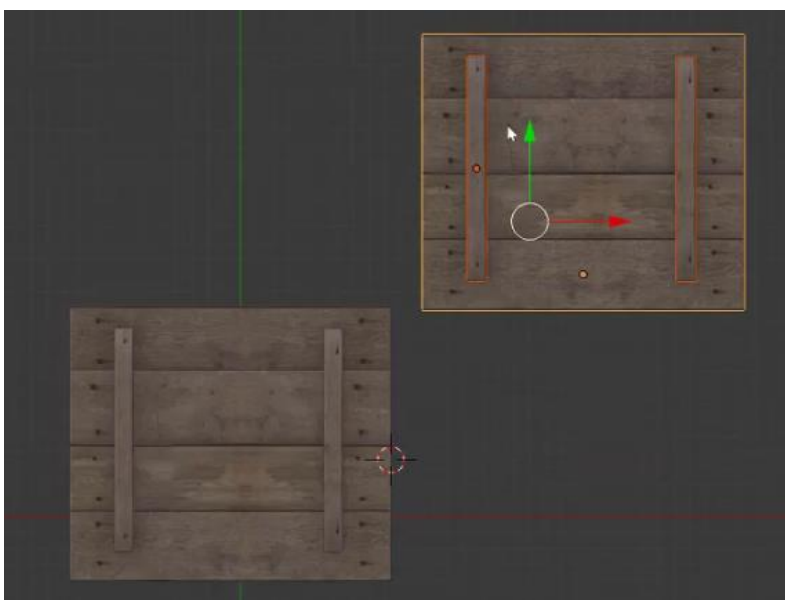
At this point our bars are quite straight so to fix that we will add a couple of loop cuts across the bars and adjust the curvature of the bars a bit.



Press “O” to turn on proportional editing and move some of the vertices around slightly.



Now we have a hatch, but we want to have at least two versions of this hatch. One larger and one smaller. So, before we join this into one object we will duplicate it and move it diagonally so that we can see both hatches in front and side view.



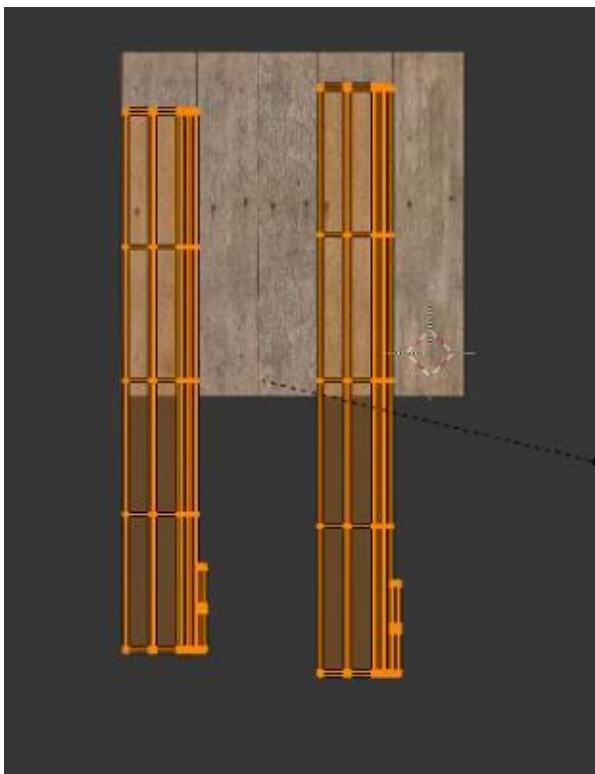
For one of the hatches we will duplicate one more plank to make it a bit larger and the new will stretch out the bars holding the hatch together so that it runs over this extra plank for the larger hatch. Change the UV-map for the last plank.



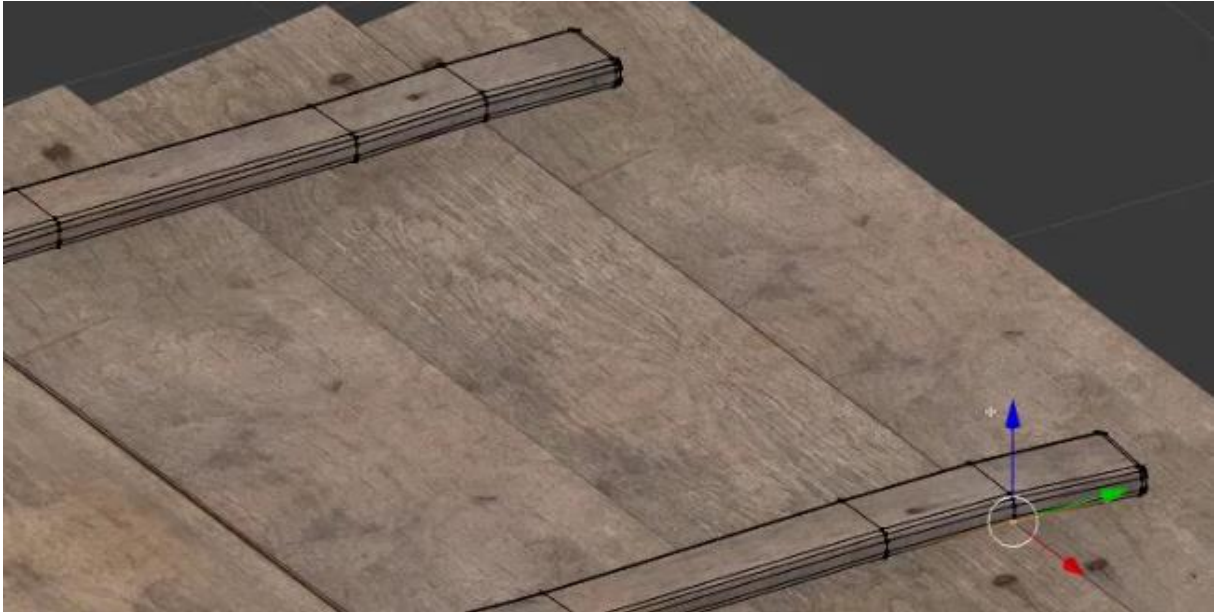
Go to top view and select the two bars going across. Use proportional editing one more time, select the top vertices of the two bars and drag them in the Y direction.



When this is done, scale the UV-map as well on the Y axis.

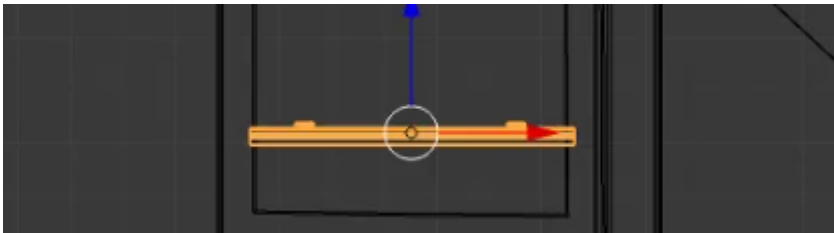


Make sure that the bars do not intersect the planks but rather just touch the underlying hatch. If you need, add a couple more loop cuts to adjust the geometry of the bars.

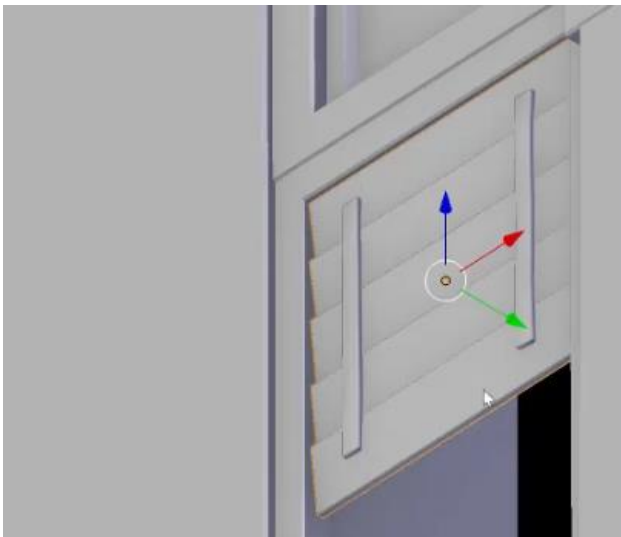


Now use “**CTRL+J**” to join the bars to its corresponding hatch. When the objects are joined use the “ctrl+alt+shift+c” shortcut and select origin to geometry. Move the finished hatches to the first layer so that we can position them on our building. Also make a duplicate of both the hatches to our asset library on layer two.

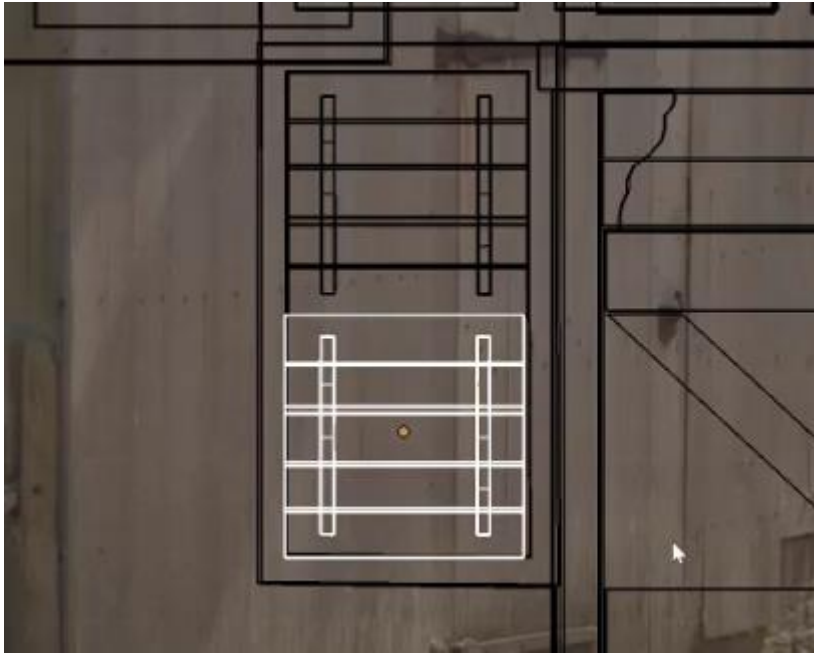
Now scale the larger hatch so that its width fits within the frame besides the main door.



Rotate the hatch and move it into position.



Now duplicate the hatch and rotate it in front orthographic view with the snapping turned on to 180 degrees or you can use the “R” followed by “Y” followed by “180” to rotate the hatch without snapping. Position the duplicate below the first hatch.



Then duplicate them over to the other side of the door for a total of four hatches.



As a last step in this lesson we will do something different. I realized that the side door is not in place so just take the door, the planks above it and the ornaments that we made earlier and duplicate it to fit inside the side door frame.

